CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1. A method to repair or modify a land grid array (LGA) interface mounted on a printed circuit board, said land grid array interface comprising a plurality of contact pads on a first surface of said printed circuit board, wherein at least one of said contact pads is connected to at least one electronic component mounted in or on said printed circuit board by a conductor, said method comprising:

for a preselected one of said contact pads to be replaced, drilling a first hole through said printed circuit board at a predetermined location and having a first diameter predetermined to be sufficient to electrically isolate said preselected contact pad from all circuits contained in or on said printed circuit board;

if any of said preselected contact pad or any conductor material directly attached to said preselected contact pad remains attached to said first surface, delaminating said remaining contact pad and any remaining attached conductor material, thereby separating said remaining contact pad and any remaining attached conductor material from said first surface of said printed circuit board;

installing a preformed replacement conductor/contact pad structure such

that a first end of said structure comprising a replacement contact pad is positioned on said first surface of said printed circuit board at the location of said removed preselected contact pad; and

electrically connecting a second end of said preformed replacement structure comprising a replacement conductor to at least one predetermined electronic component or layer, thereby completing said repair or modification.

2. The method of claim 1, further comprising:

filling said first drilled hole with a dielectric epoxy.

3. The method of claim 2, further comprising:

drilling a second hole of a predetermined diameter smaller than said first diameter through said dielectric epoxy.

4. The method of claim 3, further comprising:

threading said trace end of said preformed replacement conductor/contact pad structure through said second hole.

5. The method of claim 1, further comprising:

affixing at least a portion of said replacement structure to a surface of said printed circuit board.

6. The method of claim 5, wherein said affixing comprises activating a heat activated adhesive.

7. The method of claim 1, further comprising:

filling said hole with an insulating material;

drilling a second hole having a second diameter smaller than said first diameter; and

said installing of said preformed replacement conductor/contact pad structure comprises inserting through said second hole said second termination of said structure such that said first termination of said structure having a replacement contact pad is positioned on said first surface of said printed circuit board at the location of said delaminated contact pad.

8. The method of claim 1, further comprising protecting at least a portion of said replacement conductor by an insulating material.

9. The method of claim 1, further comprising cleaning a contact surface of said replacement contact pad.

10. A replacement pad/trace structure for repair or modification of a printed circuit board containing at least one land grid array, each said land grid array comprising a plurality of contact pads, said replacement pad/trace structure comprising:

a first contact pad portion having shape and dimensions to serve as a replacement contact pad for a predetermined contact pad to be replaced from one of said land grid arrays; and

a second trace portion comprising a conductive material electrically connected to said first portion.

11. The replacement structure of claim 10, wherein said first contact pad portion and said second trace portion comprises copper foil.

12. The replacement structure of claim 10, wherein at least a portion of a bottom surface of said first contact pad portion and said second trace portion is coated with a heat activated adhesive.

13. The replacement structure of claim 10, wherein at least a portion of said first contact pad portion and said second trace portion is plated with gold.

14. The replacement structure of claim 13, wherein said portion plated with gold is confined to said contact pad portion.

15. The replacement structure of claim 13, wherein said portion plated with gold is additionally plated with nickel.

16. The replacement structure of claim 10, further comprising:

an outer insulating layer on at least a portion of said second trace portion.

17. The replacement structure of claim 16, further comprising:

a conductive layer on the outer surface of said insulating layer.

18. The replacement structure of claim 17, further comprising:

an outer insulating layer on the outer surface of said conductive layer.

19. A printed circuit board comprising:

one or more layers; and

and at least one land grid array (LGA) interface mounted thereon, said land grid array interface comprising a plurality of contact pads on a first surface of said printed circuit board, wherein at least one of said contact pads is connected by a

conductor to at least one electronic component or structure mounted in or on at least one of said layers by a plated through hole, and wherein at least one of said plated through holes has been modified by drilling a hole having a diameter sufficient to electrically isolate a corresponding one of said contact pads from said connected electronic component or structure.